Applied Energy LLC
A Primary Energy Company

Applied Energy LLC
707 Broadway, Suite 1600
San Diego, California 92101-5378
Telephone (619) 239-9900
Fax (619) 239-3146

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Commissioner John L. Geesman
Presiding Member, 2005 IEPR Committee
California Energy Commission Dockets Unit
Attn: Docket No. 04-IEP-1K
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Re: <u>Docket No. 04-IEP-1K Committee Draft Document Hearings, Comments on Draft 2005 IEPR</u>

Dear Commissioner Geesman:

On behalf of Primary Energy, thank you for the opportunity to provide verbal comments on the *Draft 2005 IEPR* at the hearing on October 6, 2005. We offer these comments into the written record in order to further support the constructive efforts of the California Energy Commission (CEC) in this proceeding to increase the efficient use of energy resources in the State, particularly with respect to capturing and recycling into productive use energy resources that are currently being wasted.

The caliber of work that Commissioners Geesman and Boyd and the CEC staff has put into the *Draft 2005 IEPR* is evident by virtue of the fact that it may be the most single most progressive state energy report ever assembled, effectively addressing not only the structural shortfalls and perverse incentives in current practice, but also tackling head-on several associated issues and societal goals, including stumbling blocks to more efficient use of energy and the need for reduced air pollutant and greenhouse gas emissions.

In light of this, Primary Energy wishes to: (1) explicitly commend the CEC and Staff in several respects associated with Chapter 4 of the *Draft 2005 IEPR*; (2) recommend that additions be made to the draft in order to incorporate opportunities to capture and recycle waste energy consistent with the Commission's express direction on DG and CHP; and (3) offer other reflections and suggestions that may assist the Commission in improving Chapter 4 of the *Draft 2005 IEPR*.

<u>Commendation</u>

In Chapter 4 of the *Draft 2005 IEPR*, the Commission clearly and unequivocally enumerates the multiple benefits of distributed generation, particularly <u>transmission and distribution infrastructure benefits</u> including reduced line losses, less need for additional investment in transmission and distribution capacity, enhanced grid reliability, increased emergency power supply, greater power independence, and lower system costs through reduced peaks.

The Commission equally clearly enumerates many of the specific benefits that one specific distributed generation technology – the capture and productive use of waste heat through combined-heat-and-power (CHP) – provides, including:

- Economic benefits: Less fuel is consumed so lower fuel costs (as well as transportation and operating and maintenance costs) are incurred. CHP enhances the economic efficiency and competitiveness of host manufacturing facilities, strengthening this important economic sector and protecting the high-value jobs it provides. More broadly, fewer of California residents' dollars are exported to other states or overseas.
- Environmental benefits: CHP provides more energy without additional emissions from either direct combustion or the lifecycle emissions associated with production and transportation of fuels. This reduces total pollutant and greenhouse gas emissions from the levels that would otherwise occur, enhancing the ability of the State to attain federal air quality standards.
- Health benefits: Reduced emissions results in less air pollution, which in turn results in reduced health and welfare impacts – and costs – over what would otherwise be the case.
- Security benefits: If more energy is extracted from fuel, less of it has to be imported, and the more secure California's citizens and industry will be as a result.

Primary Energy commends the Commission for the significant leap forward that the *Draft 2005 IEPR* takes toward recognizing – and ultimately realizing – the economic, environmental, and other benefits of CHP. We specifically applaud CEC's recommendations to the California Public Utilities Commission (CPUC) that:

- The CPUC should require investor-owned utilities (IOUs) to purchase all available CHP-generated electricity in their service territory;
- The timeframe for this requirement should be prompt (i.e., "by the end of 2006");
- Purchase prices should reflect the utilities' avoided costs; and
- The vehicle by which this requirement is met should be through streamlined standard offer contracts.

Demonstrating awareness (and frustration) that its prior policy recommendations regarding CHP have failed to achieve adequate change, the CEC explicitly recognizes that a "belts and suspenders" approach may be necessary to break the structural impediments and resistance that currently exist. Accordingly, the CEC sagely complements the above recommendations by:

- Explicitly supporting procurement targets for CHP;
- Recommending an assured place for CHP in IOU baseload portfolios; and
- Unambiguously expressing its concern about the lack of a robust and functioning wholesale market in the state.

If fulfilled as recommended, the CHP policies embodied in Chapter 4 of the CEC's *Draft 2005 IEPR* will advance California's lead as the most energy efficient state, significantly reduce the energy cost burdens that California citizens will otherwise

face, improve the State's industrial competitiveness, and enhance air quality, public health, and the natural environment.

Recommendation

The Commission indicates that through recycling waste heat, CHP is the most efficient and cost-effective form of distributed generation. This is certainly true as compared to the marginal efficiency of traditional centralized generation. However, many other recycled energy technologies may wish to compete for this title, once they too are recognized and encouraged in the same way – and for the same reasons – that the Commission strongly and appropriately encourages CHP in the *Draft 2005 IEPR*.

Specifically, although the capture and productive use of waste heat to generate electricity, steam, or chilling represents the largest recyclable waste energy resource, significant other waste energy streams can also be readily captured and utilized. These include the capture and combustion of industrial off-gases (e.g., currently flared gases) as fuel, and the capture and use of energy currently wasted in pressure changes (e.g., in the natural gas expanders used to step-down from high-pressure pipelines to local distribution company pressures).

Of the more than 1600 MW of readily identified potential recycled energy capacity in California, nearly half reflects opportunities involving pressure changes and flared gases. This figure is likely to increase substantially with greater awareness of recycled energy opportunities, better reporting, and policy changes to encourage enhanced industrial energy efficiency.

Because the recycling of waste energy effectively substitutes knowledge and capital for additional fuel (and emissions), policy incentives to capture and recycle waste energy in all its forms will spur new creativity and knowledge, resulting in new technologies that not only enhance the efficient use of energy in California, but create leadership in new, exportable energy technologies and practices as well.

Because these recycled energy technologies provide the same benefits – for the same reasons – as CHP does, Primary Energy recommends that the CEC include explicit reference to all forms of recycled waste energy in its far-sighted support and policy recommendations concerning CHP.

Specifically, Primary Energy suggests that to the greatest extent possible, the CEC's DG and CHP policy recommendations in Chapter 4 should incorporate language to explicitly include "recycled energy" or "other ways to recover and utilize waste energy." In order to further emphasize this point – and its interest in spurring the development of new energy efficient technologies and approaches – the CEC may also wish to add general language in Chapter 4 indicating that other, cost-effective ways to efficiently recycle waste energy exist beyond CHP and waste heat recovery, such as capturing and taking advantage of industrial off-gases and pressure changes, and they provide the same across-the-board benefits as CHP. Accordingly, the CEC could indicate that the policies identified in Chapter 4 to advance CHP should be considered as applying other forms of recycled energy as well.

Other Reflections and Suggestions

Primary Energy urges the Commission to continue to see through the arguments it encounters from IOUs regarding DG, CHP, and recycled energy. Specifically, Primary Energy notes that IOUs often endeavor to craft the appearance of supporting energy efficiency and CHP, while actually working to undercut its expansion. For example, utilities may complain about being forced to buy power generated at higher heat rates, while maintaining their support for "thermally balanced, high efficiency, least cost-best fit" cogeneration. In reality, this posture circumscribes an oxymoronic "Catch-22" situation for CHP. "Thermally balanced" is meant to suggest a facility that produces adequate steam for the host but little if any electricity to be exported to the grid. The typical way of accomplishing this is to employ an inefficient gas turbine that has high exhaust temperatures. But this in turn leads to higher heat rates, of course, at which point the IOUs switch over to arguing about heat rates, complaining that CHP units are not "high efficiency." Catch-22. The latter adjective, "least cost-best fit," is self-serving on its face, as IOUs are the ones determining the "best fit."

Primary Energy offers two responses. First, FERC has concluded, and the CPUC has determined, that purchase prices for CHP (and, presumably, other recycled energy) resources should be based on utilities' avoided costs. This should put to bed once and for all IOUs' arguments about heat rates. Second, California's economy will benefit most if its manufacturers employ the most energy efficient equipment possible to meet their needs. If the most efficient gas turbines needed to provide adequate steam at a host site are sufficiently large that they produce more electricity than can be consumed on-site, the unused electricity can and should be exported to the gird. Without the ability to recover the capital costs of this more efficient approach through long term contracts, however, manufacturers are effectively encouraged by state policy to pursue the utilities' preferred course: the less energy efficient "thermally balanced" approach characterized above. IOU claims to greater heat rate efficiency only hold water if one disregards the heat energy that they waste. No generation unit using a condensing cycle to vent waste heat to the environment can legitimately claim to be more efficient than facilities that utilize – rather than waste – the heat they produce. From the perspective of overall energy efficiency and societal cost, in fact, it would make more sense to baseload CHP units and use much less efficient IOU generation to follow load.

By way of a final suggestion, Primary Energy is aware that the California General Assembly has recently adopted several pieces of legislation that could bear significantly on the *Final 2005 IEPR* and on the future of DG, CHP, and recycled energy in the State. The CEC is certainly well aware of these measures too, and may wish to include at least initial conditional perspectives as to its interpretation of these measures. For example, SB 1037 (now Chapter 366, Statutes of 2005) specifies that electrical corporations will first meet any unmet resource needs by securing "all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." The CEC may wish to include in the *Final 2005 IEPR* its sense as to whether "all available energy efficiency" includes the substantial cost-effective industrial energy efficiency available through DG, CHP, and recycled energy. Similarly, the Commission may wish to consider the extent to which the repowering provisions of AB 1576 (now Chapter 374, Statutes of 2005) –

which "facilitate investment in the replacement or repowering of older, less-efficient electric generating facilities in order to improve local area reliability and enhance the environmental performance, reliability, efficiency, and cost-effectiveness" through long-term contacts – can apply to CHP and recycled energy. Specifically, the CEC may seek to apply these provisions to the repowering of industrial energy and CHP facilities – even those smaller than 50 MW. Numerous other 2005 statutory changes may similarly impact, positively or negatively, the future of DG, CHP, and recycled energy in California.

Conclusion

Primary Energy expects that the Commission will be assailed – no doubt already has been assailed – by entrenched, centralized energy interests for its efforts to ensure that California citizens enjoy the economic, efficiency, security, reliability, environmental, and quality of life benefits reflected in the *Draft 2005 IEPR*. We urge the Commission to staunchly withstand these assaults and to maintain the sage direction that the *Draft 2005 IEPR* establishes for California.

Primary Energy applauds the Commission and its staff for the wisdom, direction, and leadership evident in the *Draft 2005 IEPR*. We look forward to an even more complete and inclusive *Final 2005 IEPR*, particularly with respect to the recycling of all forms of energy that are now being needlessly wasted. Primary Energy would be pleased to work with the CEC and staff in developing appropriate, carefully circumscribed revisions to the Draft to reflect the suggestions made above.

Very truly yours,

/s/ David J. Hermanson

David J. Hermanson
General Manager
West Coast Operations